

Title (en)
ELECTROCHEMICAL METHOD

Title (de)
ELEKTROCHEMISCHES VERFAHREN

Title (fr)
PROCEDE ELECTROCHIMIQUE

Publication
EP 1656553 B1 20090204 (EN)

Application
EP 04767980 A 20040805

Priority
• GB 2004003370 W 20040805
• GB 0319455 A 20030819

Abstract (en)
[origin: US7837846B2] An organic contaminant molecule sensor is described for use in a low oxygen concentration monitored environment. The sensor comprises an electrochemical cell, which is formed from a measurement electrode coated with (or formed from) a catalyst having the ability to catalyse the dissociative adsorption of the organic contaminant molecule, the electrode being positioned for exposure to the monitored environment, a reference electrode coated with (or comprised from) a catalyst selected for its ability to catalyse the dissociation of oxygen to oxygen anions, the reference electrode being positioned within a reference environment, and a solid state oxygen anion conductor disposed between and bridging the measurement and reference electrodes, wherein oxygen anion conduction occurs at or above a critical temperature, T_c. Sealing means are provided for separating the reference environment from the monitored environment. Means are also provided for controlling and monitoring the temperature of the cell, and for controlling the electrical current (I_p) flowing between the reference and measurement electrodes. At temperatures (T_{ads}) below T_c, organic contaminant molecules are adsorbed onto and dissociated at the surface of the measurement electrode leading to the build up of carbonaceous deposits at the surface thereof. At temperatures (T_{tit}) above T_c, an electrical current (I_p) is passed between the reference and measurement electrode thereby to control the number of oxygen anions passing from the reference electrode to the measurement electrode to oxidise the carbonaceous deposits formed at the surface thereof and the formation of carbon dioxide.

IPC 8 full level
G01N 33/00 (2006.01); **G01N 27/406** (2006.01); **G01N 27/407** (2006.01)

CPC (source: EP KR US)
G01N 27/30 (2013.01 - KR); **G01N 27/403** (2013.01 - KR); **G01N 27/4067** (2013.01 - EP US); **G01N 27/4074** (2013.01 - EP US)

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)
WO 2005019817 A1 20050303; AT E422242 T1 20090215; AU 2004267537 A1 20050303; AU 2004267537 B2 20090219; CA 2533355 A1 20050303; CA 2533355 C 20120508; CN 100575947 C 20091230; CN 1836161 A 20060920; DE 602004019339 D1 20090319; EP 1656553 A1 20060517; EP 1656553 B1 20090204; GB 0319455 D0 20030917; JP 2007502976 A 20070215; JP 4606413 B2 20110105; KR 101133820 B1 20120406; KR 20060065704 A 20060614; TW 200519377 A 20050616; TW I359946 B 20120311; US 2006266658 A1 20061130; US 7837846 B2 20101123

DOCDB simple family (application)
GB 2004003370 W 20040805; AT 04767980 T 20040805; AU 2004267537 A 20040805; CA 2533355 A 20040805; CN 200480023636 A 20040805; DE 602004019339 T 20040805; EP 04767980 A 20040805; GB 0319455 A 20030819; JP 2006523667 A 20040805; KR 20067003328 A 20040805; TW 93124720 A 20040817; US 56833106 A 20060213